

## REMARKS

Applicant appreciates the thorough examination of the present application as evidenced by the Office Action. Applicant submits that the present rejections should be withdrawn for at least the reasons discussed below.

### The Section 112 Rejections:

Some of the claims stand rejected under 35 U.S.C. § 112 as indefinite based on the recitation "intaglio pattern" in the claims. Office Action, p. 2. As this term appears in each of the independent claims, Applicant assumes, that while not expressly stated in the Office Action, this rejection applies to all the pending claims.

Applicant submits that the meaning given this term as "an etched or otherwise formed opening" in a layer of an integrated circuit device is generally correct, albeit limited to only one case of a simple "pattern." There is, however, no basis to assert that the claims are indefinite based on the dictionary definition cited by the examiner. The limited usage of such dictionary definitions has recently been clarified by the Court of Appeals for the Federal Circuit. *See, e.g., Phillips v. AWH Corp.*, No. 03-1269 (Fed.Cir., July 12, 2005) (dictionary definition plays secondary role to intrinsic evidence of the specification). The intaglio pattern as recited in the claims is, more accurately, a pattern of openings in the layer or layers of the integrated circuit device, which pattern of openings may include as few as a single opening. Clearly, the pattern is not in "stone" but it is in another "hard material" as covered expressly by the dictionary definition advanced by the Examiner. The openings are also "below the surface" as stated in the Examiner's dictionary definition. It follows that the "impression from the design yields an image in relief" as also stated in the Examiner's dictionary definition, albeit most would not be able to see the image without magnification given the scale of integrated circuit devices or perceive it has having artistic value. These distinctions, however, do not make the use of the phrase intaglio pattern in the claims a basis for a Section 112 rejection. Accordingly, Applicant submits the Section 112 rejections should be withdrawn for at least these reasons.

**The Claims Are Patentable Over the Cited Art:**

Claims 17-21 and 30 are identified as standing rejected under 35 U.S.C. § 102(b) as anticipated by United States Patent No. 6,215,646 to Ochiai *et al.* (hereinafter "Ochiai"). Office Action, p. 3. Claims 22-25 and 31 stand rejected as obvious under 35 U.S.C. § 103 over Ochiai or in combination with United States Patent No. 6,861,690 to Park (hereinafter "Park").

In rejecting independent Claims 17 and 30, the Office Action, among other things, asserts that Ochiai discloses "a plurality of electrodes 18 within an opening in the intaglio pattern." Office Action, p. 4. However, independent Claim 17 recites the plurality of electrodes are within a "single" opening, and each contacts a respective buried contact. In contrast, only a single contact plug 21 extends to contact a single lower electrode 18 in each of the trenches 17a, 17b of Ochiai. Accordingly, the rejection of independent Claim 17 should be withdrawn for at least these reasons. Independent Claim 30 has been amended to include reference to a single opening and is patentable for at least substantially similar reasons as discussed with reference to Claim 17.

In rejecting independent Claim 31, the Office Action acknowledges that Ochiai "does not teach that the intaglio had multi-steps." Office Action, p. 4. However, the Office Action asserts that Park teaches a multi-step intaglio pattern with vertical and horizontal components of the electrode 280. Office Action, p. 5. The Office Action asserts that Park discloses the two-step intaglio pattern of Claim 31. However, Claim 31 recites that the intaglio pattern exposes upper surfaces **and** "a part of sidewalls" of the buried contacts. In asserting that such an arrangement is taught by Park, the Office Action relies on both items 160 and 180 of Park as corresponding to a buried contact. However, only item contact plug 180 of Park is a buried contact. In contrast, Park states "sidewall spacers 160a are formed of silicon nitride." Park, Col. 3, lines 55-56. Thus, the spacers 160a are non-conductive structures, referred to as "electrode supporting" layer(s). Park, Col. 2, lines 5-6. Such structures would not be considered a buried contact as recited in Claim 31 to those of ordinary skill in the art. Accordingly, Park does not disclose an intaglio pattern exposing upper surface **and** a part of sidewalls of buried contacts and the rejection of independent Claim 31 should be withdrawn for at least these reasons.

In addition, the alleged motivation is based on Park's alleged benefit of reducing a tendency of a lower electrode to collapse. However, there is no indication that one of skill in the art would believe collapsing of a lower electrode was even an issue for the structure of Ochiai. Based on the Figures of Ochiai, the length of the alleged "vertical" portions of the layer 18 of Ochiai is so limited that the problem of Park is not even raised as there is no "large height" being used for the lower electrode as discussed as the cause of the problem addressed by Park. Park, Col. 1, lines 23-40. Therefore, the rejection of independent Claim 31 should also be withdrawn at least as the combination relied on of Park and Ochiai is not supportable under the legal standards for motivation to combine for a Section 103 rejection.

The dependent claims are patentable at least based upon the patentability of the independent claims from which they depend. Various of the dependent claims are also separately patentable. For example, Claim 22 and Claims 23-25 and 35 depending therefrom are also patentable for the reasons discussed above with reference to independent Claim 31 based on corresponding recitations in Claim 22.

Claim 18 recites that the lower electrodes are "semi-cylindrical" and "symmetrically arranged in the opening in the intaglio pattern. The Office Action asserts that Ochiai "teaches that the lower electrodes 18 have a semi-cylindrical shape." Office Action, p. 4. However, as seen in the top planar views of Figures 10B and 12A of Ochiai, this is not true, rectangular shapes are shown instead. In comparison, the recited arrangement of Claim 18 can be seen, for example, in Figure 12 of the present application. Furthermore, the Office Action fails to address the recitation related to a symmetrical arrangement of a plurality of lower electrodes. Accordingly, Claim 18 is separately patentable for at least these additional reasons.

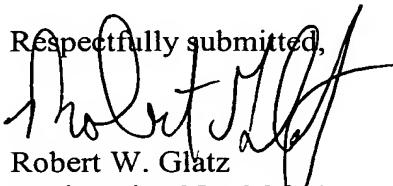
Claims 23-24, 32 and 34 each include recitations regarding a particular lower electrode arrangement with reference to the corresponding buried contact. Such a relationship is not disclosed by Park particularly as the silicon nitride layer 160a cannot properly be considered a buried contact. Accordingly, Claims 23-24, 32 and 34 are also separately patentable for at least these reasons.

Newly added independent Claim 35 generally corresponds to Claim 17, with references to an "intaglio pattern" removed therefrom. Accordingly, Claim 35 is patentable for substantially the same reasons as discussed above with reference to Claim 17.

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## CONCLUSION

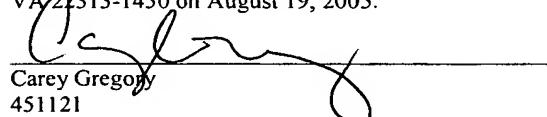
Applicant respectfully submits that, for the reasons discussed above, the references cited in the present rejections do not disclose or suggest the present invention as claimed. Accordingly, Applicant respectfully requests allowance of all the pending claims and passing this application to issue.

Respectfully submitted,  
  
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